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The Transformation of Implant Bed Preparation: A Clinical Guide

The common drilling and tapping procedures for the conformation of the implant bed can impact the surrounding bone viability. One purpose of drilling is to provide mechanical fixation delivering short-term primary stability. Primary stability after implant placement can be measured with a variety of devices today. What we cannot evaluate today is the transient and long-term effect of the implant bed preparation: Depending on the drilling technique, drilling materials, drill bit geometry or bone characteristics, a greater or lesser degree of thermal and mechanical injury can occur. Temperature rises during the bone drilling procedure can easily reach threshold temperature, above which necrosis of human bone will take place. Any critical thermal damage will result in increased bone remodeling and an extended healing period that is delaying the osseointegration process. Creating a safe IBP with healthy bone cells surrounding the implant can certainly be a key ingredient for implant success and the subsequent restorative approach. Various clinical approaches to implant site preparation and the related thermal damage including the clinical consequences will be illuminated in this lecture: a) conventional drilling, which is the gradual expansion of the osteotomy site by sequential increments of the drill diameter; b) simplified drilling, which consists of the reduction in the number of drills through the use of a specially designed starter drill followed by a final drill; c) biological drilling, which consists of low speed drilling without irrigation for incremental site preparation; d) one drill bit protocols, performed with specially designed drills and external irrigation.

Keywords: Working length determination, apex locator, X ray, CDJ, apical foramen, clinical tips

Biography:

Dr. Emilio Argüello obtained his dental degree, specialty training in periodontology, and Master of Science in Oral Medicine from Tufts University School of Dental Medicine in Boston, MA. Dr. Argüello is Board Certified and a Diplomate of the American Board of Periodontology and Implant Dentistry.. He has been a core faculty at the Harvard University School of Dental Medicine in the post-gradute periodontology program for over 15 years. Dr Argüello has faculty appointments in universities in the United States, Mexico and Europe.

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